

MSFC SHE PROGRAM

Refresher Training



**July
2003**

**Presented by:
MSFC Industrial Safety Department**



MSFC SHE Program Refresher Training Agenda

Safety, Health & Environmental = SHE

- ☐ **MSFC SHE Program Overview**
- ☐ **MSFC CPR 1: Management Commitment and Employee Involvement**
- ☐ **MSFC CPR 2: System And Worksite Hazard Analysis**
- ☐ **MSFC CPR 3: Hazard Prevention And Control**
- ☐ **MSFC CPR 4: Safety And Health Training**
- ☐ **MSFC CPR 5: Environmental**
- ☐ **Tips on Taking the 2003 Performance Evaluation Profile (PEP) Survey**

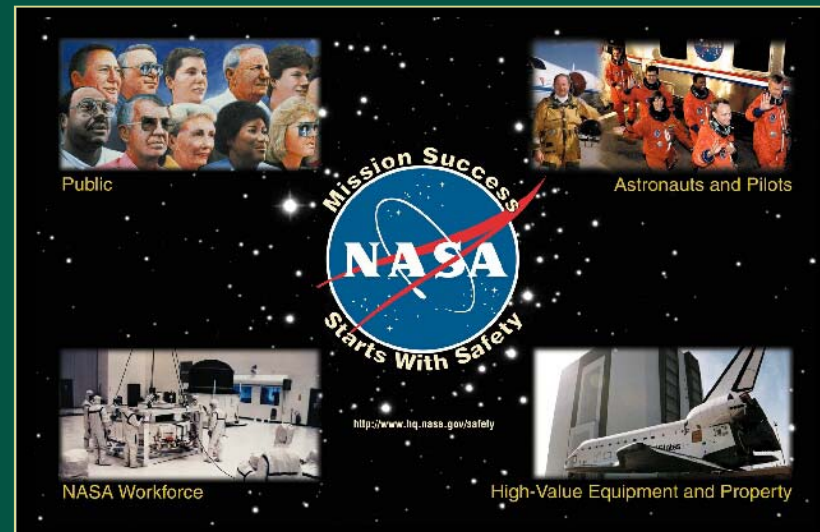


MSFC SHE Program

Agency Safety Initiative Guides MSFC SHE Program

□ NASA Agency Safety Initiative (ASI)

- NASA's program to improve safety and health programs across the Agency.
- ASI Core Process Requirements match the first four (4) MSFC CPRs.



□ MSFC SHE Program strives to...

- Provide employees with a safe and healthful workplace.
- Comply with State and Federal laws for worker protection.
- Ensure that the environment is not harmed by what we do at work.



SHE Policies for MSFC

SHE Policies & Goals Show Commitment to Worker Protection

- ❑ **MSFC Management establishes Center-wide SHE Policies, and the SHE Goals & Objectives the Marshall Team strives to meet.**
- ❑ **MSFC SHE Policies:**
 - **SAFETY:** MSFC will strive to prevent human injury and occupational illnesses, and ensure the safety of all operations and products.
 - **HEALTH:** MSFC will strive to promote and maintain the physical well-being of its employees.
 - **ENVIRONMENTAL:** MSFC will strive to protect, preserve, and enhance the quality of the environment while conducting its primary mission activities.



SHE Goals & Objectives

MSFC Management Sets SHE Goal & Objectives for 2003

**Establish MSFC as Number One
in Safety Within NASA***

□ MSFC Safety and Mission Assurance Objectives

- Zero lost-time mishaps
- No OSHA-recordable violations
- No safety-related property damage greater than \$1M
- No in-flight safety anomalies
- All MSFC projects will complete safety reviews on time

***Transitioning to: "Help Establish NASA as a World Class Leader in Safety."**



SHE Program Roles & Responsibilities

Where SHE Program Functions Are Managed

Safety & Mission Assurance Office - QS01

Industrial Safety - QS50

- Building Manager & Safety Coordinator Programs
- Contractor Safety Programs
- Design Reviews
- Electrical Safety & Lockout/Tagout
- Explosives, Propellants, Pyrotechnics, & Pressure System Safety
- Facility & Construction Inspections
- Fire Safety & Drills
- Hazard Warnings & Barricades
- Hazardous Operation Procedure Review
- Hot Work Permits
- Lifting Operation Safety
- Mishap & Close Call Reporting Procedures, Tracking, & Trends
- OSHA and NFPA Interface
- Performance Evaluation Profile (PEP) Survey
- Personal Protective Equipment (PPE)
- Safety & Hazard Assessments
- Safety Awareness & Training
- Safety Database Management
 - SSWP, IHOPs, HAZTRACK, SCRS
- Safety Hotline @ 544-HELP
- Safety Personnel Certifications
- Safety Program Development/Assessment
- Safety Reviews (SRT, ORI, TRR)
- Workers' Compensation (NASA)

Center Operations Directorate - AD01

Environmental Engineering - AD10

- Air & Water Monitoring
- Chemical Inventory/MSDS
- Environmental Assessments
- EPA/ADEM Interface
- Hazardous Materials/Waste Management
- Pollution Prevention
- Recycling Program
- Superfund Remediation
- Wastewater Treatment

Integration – AD60

- Asbestos/Lead Identification & Monitoring
- Confined Space Entry Permit
- Counseling & Referral Program
- Emergency & Ambulance Services
- Emergency Preparedness Operations & Drills
- Ergonomics
- Food Sanitation
- Hazard Communication Program & MSDS
- Hearing Conservation Program
- Industrial Hygiene Services, Inspections & Exposure Monitoring
- Laser Operations Approval
- Medical Center
- Radiation Protection & Training
- Radon Monitoring
- Respiratory Protection Program

Facilities Engineering - AD20

- Asbestos Operation & Maintenance (O&M) and Abatement Services
- Custodial Services & Bloodborne Pathogens Cleanup
- Digging Permits
- Equipment & Instrument Calibration
- Facilities Construction, Alteration & Modification
- Facilities O&M
- Fire Protection & Atmospheric Monitoring System Maintenance & Inspection
- Hazardous Material Spill Response
- High Pressure Gas, Propellants, & Cryogenics
- Lifting Devices & Excavation Equipment O&M
- Pest Control Services
- Predictive & Preventive Maintenance Programs
- Refuse Collection Services
- Roads & Grounds Maintenance

Protective Services - AD50

- 911 Dispatch
- Counterintelligence/Counterterrorism
- Identification & Access Badges
- Security
- Vehicle Accident Response

Customer & Employee Relations Directorate - CD01

Employee Assistance (HR) - CD10

Training, Center-wide - CD20

Communications - CD40

All Center Organizations

- Regulatory & Procedural Compliance
- SHE Program Improvement
- Requirements Flow-Down to Contractors & Subcontractors
- Monitoring Workers & Work Areas
- SHE Performance Reporting

Working Together For A Safe And Healthy Work Environment



MSFC System of SHE Committees

Where SHE Program Improvements Develop

Marshall Team Meeting

Chairperson: David King/DA01

Safety, Health & Environmental (SHE) Committee¹

- Elected Chairperson: NanceJo Ogozalek/Lab Ops Subcommittee
- 5 Representatives of Directorates with Hazardous Operations
- 10 Chairpersons of Operations Subcommittees
- 1 Building Manager Subcommittee Chairperson
- 1 Chairperson of Contractor Safety Forum

Advisory, Non-Voting Members

- Senior Management Sponsor: Axel Roth/DE01
- Chairpersons of (non-voting) Centerwide Subgroups
- Technical Advisors:
 - CaER Directorate²: Susan Cloud/CD01
 - Center Operations Directorate²: Jim Carter/AD01
 - Environmental Engineering²: Farley Davis/AD10
 - Environmental Health²: David Thaxton/AD02
 - Industrial Safety Department²: Dave Spacek/QS50
- Representatives of Nonhazardous Operations Organizations
- Occupational Medicine²: Joyce Eagan/AD60
- Space Shuttle Propulsion Office Representative
- Second Generation RLV Program Office Representative

Nonhazardous Operations

- Office of the Director
- Systems Management Office
- Safety & Mission Assurance Office
- Customer & Employee Relations Directorate
- Office of Chief Counsel
- Office of Chief Financial Officer
- Procurement Office
- Equal Opportunity Office

KEY

- ¹ = At least 50% of voting members to be non-supervisory
- ² = Pre-existing working group
- ³ = Ad hoc group convened as needed

Hazardous Operations Directorates & Representatives

- Center Operations (AD): Cathy Miller/AD62
- Engineering (ED): Paul Munafo/ED30
- Flight Projects (FD): Paige Vaughn/FD22
- Science (SD): Tom Dollman/SD01
- Space Transportation (TD): Tammy Barcala/TD40

Operations Subcommittees & Chairpersons

- Cryogenic Operations: Tommy Barron/LB&B
- Hazardous Chemicals & Materials: Laurel Karr/SD46
- Laboratory Operations: NanceJo Ogozalek/ED33
- Lifting Devices & Equipment²: Kevin Primm/AD23
- Lockout/Tagout (LOTO): T.D. Jackson/EG&G
- Machine Shop Operations: Dan Donovan/MCI
- Pressure Operations²: Jack Caudle/AD23
- Radiation²: Brian Ramsey/SD50
- Safety Assessment: John Simmons/Thiokol
- Wellness & Ergonomics: Julie Sanchez/FD35

Center-Wide Subgroups & Chairpersons

- Building Manager Subcommittee²: Brenda Wade/FD43
- Contractor Safety Forum²: Phil Robbins/CSC
- Emergency Preparedness²: Cathy Miller/AD62
- Energy Conservation & Recycling²: Cedreck Davis/AD22
- MSAT²: Glenn Owens/LB&B
- PEP Survey³: Kristie French/QS50
- SHE Communications Team²: Norma Horton/QS50
- SHE Enhancement Team²: Keith Cornett/UP10

SHE Program Foundation

S&MA

- Industrial Safety
- System Safety
- Worker's Compensation
- Mission Success

Center Operations

- Occupational Medicine/Environmental Health
- Environmental Engineering
- Facilities Engineering
- Aviation Safety
- Protective Services
- Emergency Operations
- Physical Fitness
- Logistics

CaER

- Communication
- Training
- Employee Assistance



'SHE' Is In The Library

The Marshall Integrated Document Library

SHE Program Requirements & Processes Defined

Safety

- MWI 1280.5, MSFC ALERT Processing
- MWI 1700.1, Payload Safety Readiness Review Board
- MWI 1700.2, System Safety Program
- MWI 1700.3, NASA Safety Reporting System Corrective Action Process
- MPG 3410.1, Training
- MWI 3410.1, Personnel Certification Program
- MWI 6410.1, Packaging, Handling, and Moving Program Critical Hardware
- MWI 6430.1, Lifting Equipment and Operations
- MMI 6430.1, Aviation Accident Plan and Investigation
- MWI 8621.1, Close Call and Mishap Reporting and Investigation Program
- MPG 8715.1, Marshall Safety, Health, and Environmental (SHE) Program
- MWI 8715.1, Electrical Safety
- MWI 8715.2, Lockout/Tagout Program
- MWI 8715.3, Hazard Warning Signs and Barricades
- MWI 8715.4, Personal Protective Equipment (PPE)
- MWI 8715.6, Hazardous Operations
- MWI 8715.8, Operational Readiness Program
- MWI 8715.9, Occupational Safety Guidelines for MSFC Contractors
- MWI 8715.10, Explosives, Propellant, and Pyrotechnics Program
- MWI 8715.11, Fire Safety Program
- MWI 8715.13, Safety Concerns Reporting System (SCRS)
- MWI 8715.15, MSFC Safety Assessment Program
- MWI 8715.16, Supervisor Safety Visits
- MPG 8823.2, Pressure Systems Guidelines and Certification Requirements

Health

- MPD 1800.1, MSFC Smoking Policy
- MPG 1800.1, Bloodborne Pathogens
- MPG 1810.1, MSFC Occupational Medicine
- MPD 1840.1, MSFC Environmental Health Program
- MPG 1840.1, MSFC Confined Space Entries
- MPD 1840.2, MSFC Hearing Conservation Program
- MPG 1840.2, MSFC Hazard Communication Program
- MPD 1840.3, MSFC Respiratory Protection Program
- MPG 1840.3, MSFC Hazardous Chemicals in Laboratories Protection Program
- MPD 1860.1, Laser Safety
- MPG 1860.1, MSFC Radiation Procedures and Guidelines
- MPD 1860.2, Radiation Safety Program
- MPG 3810.1, MSFC Management of Worker's Compensation Injuries
- MPD 8900.1, Medical Operations Responsibilities for Human Space Flight Programs

Environmental

- MPD 8500.1, MSFC Environmental Management Policy
- MPG 8500.1, MSFC Environmental Management Program
- MWI 8540.2, Affirmative Procurement Program for Environmentally Preferable Products
- MWI 8550.1, Waste Management
- MWI 8550.2, Storm Water Management
- MWI 8550.3, Wastewater Compliance
- MWI 8550.4, Air Emissions Compliance
- MWI 8550.5, Hazardous Material Management
- MPD 8570.1, MSFC Energy Management Program

Emergency

- MPD 1040.3, MSFC Emergency Program
- MPG 1040.3, MSFC Emergency Plan
- MPG 1600.1, MSFC Security Procedures and Guidelines
- MPG 7900.1, Aviation Accident Plan



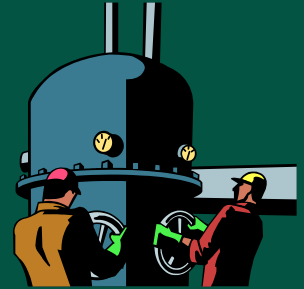


SHE Program Implementation & Documentation

5 CPRs Drive SHE Program Implementation at MSFC

❑ Core Process Requirements Define Functions of Our SHE Program

- **CPR 1:** Management Commitment & Employee Involvement
- **CPR 2:** System And Worksite Hazard Analysis
- **CPR 3:** Hazard Prevention And Control
- **CPR 4:** Safety And Health Training
- **CPR 5:** Environmental



❑ CPRs Apply to ALL MSFC Organizations, Operations & Personnel

- Everyone completes the basic functional processes.
- The more hazard exposures there are, the more involved the processes are.

❑ More Direct Employee Participation Needed For Hazardous Operations

- **AD:** Center Operations Directorate
- **ED:** Engineering Directorate
- **FD:** Flight Projects Directorate
- **SD:** Science Directorate
- **TD:** Transportation Directorate





CPR 1: Management Commitment & Employee Involvement

MSFC Organizations Also Set SHE Goals & Action Plans

Directorates, Offices & Contractors

- Establish & communicate internal SHE goals & objectives.
- ❑ **Directorate Safety Goal for AD, ED, FD, SD, & TD**
 - To help MSFC and NASA be 'World Class' in Safety.
- ❑ **Directorate Safety Objectives & Action Plans for AD, ED, FD, SD, & TD**
 - Zero lost-time mishaps.
 - No OSHA-recordable violations.
 - No safety-related property damage greater than \$1M.
 - No in-flight safety anomalies.
- ❑ **Employee Performance Plans**
 - Individual Employee Requirements help meet SHE goals & objectives.

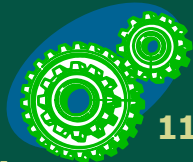




CPR 1: Management Commitment & Employee Involvement

All MSFC Organizations Have A Role in the SHE Program

- ❑ **Safety and Mission Assurance Directorate**
 - ➔ Provides Industrial Safety Inspections, MSFC Project Support, Safety Specialist expertise in fire, explosives, and facility safety issues.
 - ➔ Maintains SCRS, IHOPS, SSWP, and HAZTRAK databases, publishes *Safety Bulletins* and *SHE ShopTalk*, and maintains safety documentation and procedures.
- ❑ **Center Operations Directorate**
 - ➔ Provides programs for Occupational Medicine, Environmental Health, Environmental Engineering, and Facilities Engineering.
 - ➔ Maintains Chemical Inventory, provides online access to MSDSs, tracks and performs Preventive Maintenance, maintains facilities and equipment in safe condition.
- ❑ **Customer and Employee Relations Directorate**
 - ➔ Provides SHE-related Employee Training and Support programs.
 - ➔ Assists with SHE communications and publications – ETV, *Inside Marshall*, SHE Training.
- ❑ **Each MSFC Organization**
 - ➔ Implements SHE requirements within their organization, flows SHE requirements down to contractors, monitors employees and work areas.
- ❑ **Each MSFC Area and Directorate**
 - ➔ Assigned Safety and Facility points of contact are listed on the SCRS web page.





CPR 1: Management Commitment & Employee Involvement

We Are the SHE Committee, Subcommittees & Teams

- ❑ Members are MSFC civil service and contractor Management, Supervisors, Employees, and Unions -- volunteers and appointees.
- ❑ Members represent the SHE interests of all who work at MSFC.
- ❑ Members actively work to review and improve SHE Program.
- ❑ MSFC SHE groups contribute to the quality of our work lives:
 - **MSAT – Marshall Safety and Health Action Team**
 - Volunteers representing all NASA and on-site contractor employees.
 - Conduct SHE Awareness campaigns, Safety Jeopardy, “I Think Safe Because...” backdrop badges.
 - **CSF – Contractor Safety Forum**
 - Volunteers representing all MSFC contractors.
 - Coordinate SHE requirement implementation, self-assess SHE Program effectiveness.
 - **Task-Specific SHE Groups**
 - Examples: Cryogenics, JHA, Laboratory Safety, Lifting, Lockout/Tagout, Pressure Systems, Radiation Safety, Pollution Prevention, SHE Communication, SHE Training, Wellness & Ergonomics.
 - Examine and coordinate improvement of specific SHE processes and programs.
 - **Organization-Specific SHE Groups**
 - Conduct safety meetings, pre-operational planning & review sessions, inspection & audit teams.
 - **SHE Committee**
 - Represent employees & management equally in monitoring & guiding SHE performance.
 - **Marshall Team Meeting**
 - Address SHE policies, issues & concerns by top-level MSFC and Contractor management .





CPR 1: Management Commitment & Employee Involvement

Employees Are Actively Involved in the SHE Program

❑ SHE Committee & SHE Subcommittees

- Be a volunteer or appointed member.
- Submit ideas & concerns.

❑ Safe Work Practices & Hazard Control Documentation

- Add to *Inventory of Hazardous Operations* (IHOPS) Database.
- Help write Procedures & JHAs, & keep up to date.
- Identify all hazards, & describe effective hazard controls.
- Review & comment on draft SHE directives posted on *Inside Marshall*.

❑ Safety Meetings

- Participate in, present topics, & provide input.

❑ Supervisor Safety Visits

- Participate in & provide input.



❑ SHE Program Improvement Suggestions

- Use *Safety Concerns Reporting System* (SCRS) to submit.
- Use *NASA Safety Reporting System* (NSRS) to submit.
- Both systems take anonymous reports.

❑ Unsafe Circumstances & Concerns

- Use 'Stop Work Authority'.
- Discuss with Supervisors, Building Managers, and/or SHE Committees.
- Submit SCRS or NSRS reports.

❑ Participate in Special SHE Activities

- Safety Day, Health & Fitness Expo, Health Walk, Earth Day, etc.
- SHE Awareness Campaigns.

❑ If Necessary, Contact OSHA about Safety Concerns, Without Fear of Reprisal



CPR 1: Management Commitment & Employee Involvement

Management Action Shows Commitment to Your Safety

- ❑ Sponsors & supports the **SHE Committee & Subcommittees**
- ❑ Encourages & allows time for **Employee Involvement in SHE Activities**
- ❑ Participates in **SHE Processes & SHE Program Review**
- ❑ Acts to improve trends identified by **Analyzing SHE Performance Metrics**
- ❑ Encourages **Open SHE Communication**
 - Safety Meetings, Safety Moments, Close Call Reporting, SCRS, etc.
- ❑ Provides funds & resources for **SHE Improvements**
- ❑ Recognizes & supports **SHE Regulations & Requirements**
- ❑ Provides references & professional staff to **Communicate SHE Information**
- ❑ For all levels of employees, **Defines SHE Responsibilities**
- ❑ Defines & uses a variety of **Methods for Hazard Identification**
- ❑ Controls hazards by complying with **NASA, OSHA, & Industry Standards**
- ❑ Conducts monthly **Safety Meetings & Supervisor Safety Visits**
- ❑ Provides & supports online **Access to SHE Databases & Applications**
 - SSWP, HAZTRAK, IHOPS, CERTRAK, MSDS, SHE Training Registration, Chemical Inventory, etc.
- ❑ Makes available all needed **Personal Protective Equipment & SHE Training**





CPR 2: System & Worksite Hazard Analysis

Worker Protection Begins With Knowing the Dangers

- ❑ **Hazards In All MSFC Work Areas Are Identified & Controlled**
 - Job Hazard Analysis, Safety Assessment, Worksite Inspection, Supervisor Safety Visits, Readiness Reviews, SCRS Reports, and/or employee observations.
- ❑ **Hazards In All MSFC Operations Are Assessed & Controlled**
 - All MSFC operations are assessed for accident risks.
 - **Facility Risk Indicators (FRI)** are assigned to each work area & operation.
 - FRI codes describe level of hazard employees are exposed to.
 - MSFC **Safety Assessment** requirements are based on FRIs (see next slide).
 - **Inventory of Hazardous Operations (IHOPS)** database.
 - Lists operations & locations with significant risk of personnel injury.
 - Includes hazards like extreme heat or cold, high pressure, explosives, toxic chemicals, etc.
 - Effective controls for hazards are chosen, documented, & implemented.
 - **Hazard control documents** include Job Hazard Analysis (JHA), Hazardous Operation Procedure (HOP), Operational Hazard Analysis (OHA), etc.
- ❑ **Identified Hazards Are Tracked to Closure**
 - Hazards and safety concerns are tracked in databases.
 - Examples: Supervisor Safety Web Page (SSWP), HAZTRAK, SCRS, etc.
 - Databases monitor time limits for responding to the submitter.
 - Inspection findings are posted in work areas until resolved.
 - Hazard elimination or control is verified during follow-up inspections.





CPR 2: System & Worksite Hazard Analysis

Risk of Injury Determines Minimum Safety Effort Required

- ❑ **Type of MSFC Safety Assessment required depends on Facility Risk Indicator (FRI)**
 - **Annual SHE Program Self-Assessment** verifies hazard analysis:
 - FRIs are re-evaluated.
 - Changes in equipment, facilities, processes & procedures are examined for new hazard exposures.
 - Checklists used to help evaluate & implement regulatory compliance.
 - Hazard control procedures & documents are reviewed & updated.
 - Supervisors & employees perform self-assessment & update IHOPS data.
 - **FRIs are entered into IHOPS**, & database identifies required type of **Safety Assessment**.
 - Safety assessments & methods chosen to eliminate or control hazards are documented.
 - This SHE process is defined in **MWI 8715.15, "Safety Assessment"**.

Risk Level (FRI)	ORI	SRT	TRR/ ORR	HA	JHA	OP	Dry Run	PPE Assess't
1	X		X	X		X	X****	X
2		X	X	X		X		X
3		X*	X*		X**	X		X**
4					X**	X**		X***

Safety Assessment Product
HA = Hazard Analysis
JHA = Job Hazard Analysis
OP = Operating Procedures
PPE = Personal Protective Equipment
ORI = Operational Readiness Inspection
SRT = Safety Readiness Team Inspection
TRR = Test Readiness Review
ORR = Operational Readiness Review

- * If determined necessary by responsible organizations or S&MA.
- ** A JHA or OP are required.
- *** Not required for non-hazardous office environments.
- **** If determined necessary by responsible organizations or S&MA.





CPR 2: System & Worksite Hazard Analysis

IHOPs:
Online Database Used To Document Analysis of MSFC Operations With Risk of Injury



Inventory Of Hazardous/Potential Hazardous Operation At MSFC

* An Associated Checklist contains a NO answer.

ID	Building Room/Area	Hazardous Operation	Risk Level	Point of Contact	Submitting Org	Supported Org	Inventory Date	Date Of Next Inventory	Date of Last S&MA Review	S&MA	Reviewed By	Status
1022	Centerwide area	Confined Spaces	3	JOHN NUGENT	TBE- PP&C01	AD01	1/24/2003	1/25/2004	2/5/2003	Sonya Hutchinson	Sonya Hutchinson	Reviewed
1071	4656 Simulator pits	Confined Spaces	2	MICHAEL HANNAN	TD54	TD01	1/27/2003	1/28/2004		Alvin Eidson		Draft
967	Test Area Test Stand and Test Cells	Confined Spaces	2	JESSE ORTNER	LBB05	TD01	1/27/2003	1/27/2004		Alvin Eidson		In Process
1175	4619 139	Confined Spaces	2	BILLY STEVENSON	ICRC01	ED01	1/30/2003	1/30/2004		Alvin Eidson		Draft
1290	4530 Test Stand 300 Vacuum Chambers	Confined Spaces	4	Van Blankenship	TD73	TD01	1/30/2003	1/31/2004	5/21/2003	James Cobb	James Cobb	Reviewed
1280	4659 storage tanks	Confined Spaces	3	David Dougherty	TBE- PP&C01	AD01	1/30/2003	1/31/2004	5/21/2003	James Cobb	James Cobb	Reviewed
1389	Centerwide Area	Confined Spaces	2	JAMES SHAFER	EG&G01	AD01	3/12/2003	3/11/2004	3/17/2003	KYLE DANIEL	Sonya Hutchinson	Reviewed
1432	* Centerwide all	Confined Spaces	2	Vance George	PrISMS200	AD01	3/21/2003	3/21/2004		Sonya Hutchinson		In Process



CPR 2: System & Worksite Hazard Analysis

Analysis of Our SHE Performance Helps Improve Hazard Control

❑ Safety Concerns, Mishaps & Close Calls Are Investigated

- Investigation team makeup depends on severity of mishap.
- All employees eligible for appointment to an investigation team.
- Team trained in investigation method and cause determination.
- Root Causes are identified, tracked to resolution, and trends are analyzed.



❑ Safety Concerns, Mishaps & Close Calls Are Reported & Publicized

- Employees use the NASA Safety Reporting System (NSRS), Safety Concerns Reporting System (SCRS), and Flash Reports.
- Lessons learned are publicized in Safety Meetings, Safety Bulletins, Safety Moments, SHE Highlights, and on the SHE Website.

❑ Open Safety & Facility Items Are Viewed Using SHE Website 'Safety Search'

❑ Significant Items & Trends in Mishaps & Injuries Are Identified

- Significant items and trends, which identify our most common injury types, are tracked as required by OSHA requirements.
- MSFC Industrial Safety Department compiles performance data and presents to the SHE Committee and Center Management.
- Safety performance metrics are posted on the SHE Website.

❑ Hazard Analysis Processes Benefit All Employees

- Helps reduce actual occurrence of mishaps, and saves MSFC employees from injury.
- Saves MSFC project dollars, and allows them to be spent on actual work.





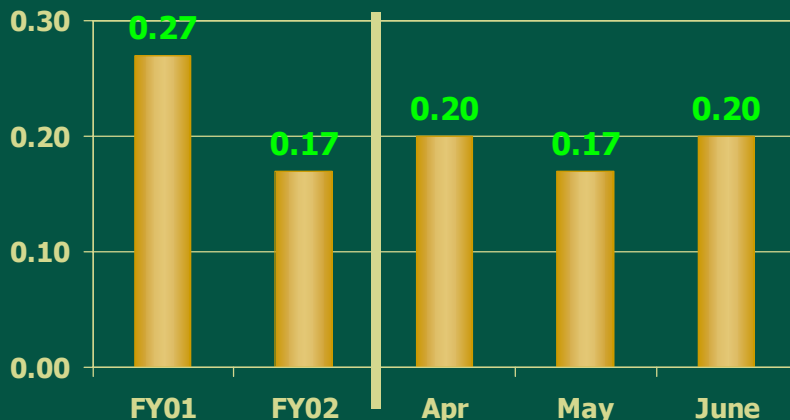
CPR 2: System & Worksite Hazard Analysis

SHE Performance Metrics Like These Are Published Every Month

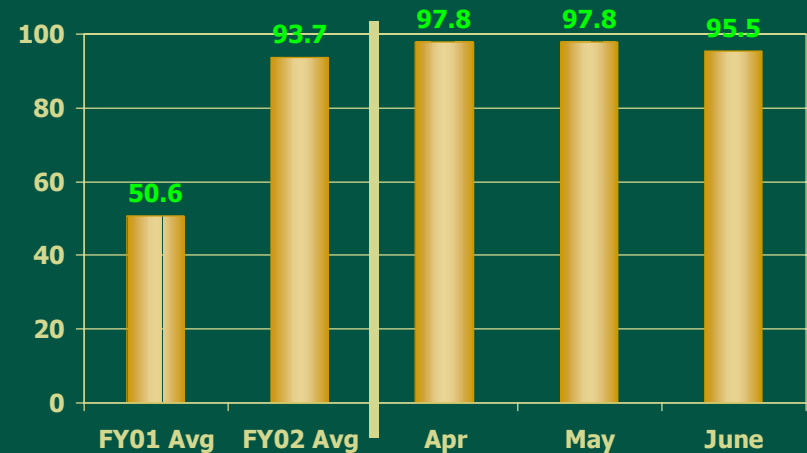
Monthly SHE Performance Metrics

- Personnel Safety Pyramid
- Leading Indicators
- Safety Meetings & Supervisor Safety Visits
- SCRS Report
- Trailing Indicators
- OSHA Recordable Rates by Organization
- FY03 Lost Time Mishaps
- IHOPS Update
- Special Emphasis Areas

Lost-Time Mishap Incidence Rate



Supervisor Safety Visits - % Completed



Publicizing SHE Performance Metrics

- Live presentation at SHE Committee Meeting.
- Live presentation at Marshall Team Meeting.
- Presentation slides posted on SHE Website.
- Online publication of meeting minutes.
- Databases can be viewed on SHE Website.
- Supervisor Safety Web Page (SSWP) can show metrics for a single organization.
- Injury prevention & health awareness campaigns include analysis of trends.



CPR 3: Hazard Prevention & Control

SHE Protection Builds on Hazard Identification & Analysis

❑ Potential Hazards Are Identified, Control Measures Are Documented

- Worksite Inspections, Job Hazard Analyses, Operating Procedures, and Test Readiness Reviews.

❑ Effective Hazard Control Methods Are Selected

- Eliminate the hazard.
- Design for minimum hazard.
- Incorporate safety devices.
- Provide caution and warning devices.
- Develop administrative procedures and training.

Most Effective

Ability to
Prevent
Injury

Least Effective

❑ MSFC Directives Specify Devices, Procedures, and Training

- MWI 8715.2 – Lockout/Tagout Program.
- MWI 8715.3 – Hazard Warning Signs and Barricades.
- MWI 8715.4 – Personal Protective Equipment (PPE).
- MPG 1840.2 – Hazard Communication Program.
- MPD 1840.3 – MSFC Respiratory Protection Program.
- MPD 1840.1 – MSFC Environmental Health Program.
- MPG 1810.1 – MSFC Occupational Medicine.
- MPG 1800.1 – Bloodborne Pathogens.
- MPD 1840.2 – MSFC Hearing Conservation Program.





CPR 3: Hazard Prevention & Control

Facility & Equipment Maintenance Programs Uphold SHE Standards

❑ Facilities & Equipment Maintenance Preserves A Safe & Healthful MSFC Work Environment

- Computers, copiers, fax machines, and other office equipment.
 - ➔ Operator's manuals are provided, and support personnel are identified.
- Government vehicles.
 - ➔ Regular scheduled maintenance is performed by the GSA.
- Installed Facility Engineering Department (FED) equipment.
 - ➔ Each MSFC building is evaluated at least every 5 years, to update facility equipment included in the Predictive & Preventive Maintenance Program.
- New FED equipment.
 - ➔ Procured items such as air handlers, compressors, and heat pumps are evaluated, and appropriate schedules for preventive maintenance or predictive testing are established.
- Laboratory equipment.
 - ➔ Instruction manuals are provided; many items are regularly tested, inspected, and adjusted under the MSFC Calibration Program.
- Cranes, hoists, and other lifting devices.
 - ➔ Scheduled maintenance, inspection, and testing are performed by the FED.



❑ Maintenance for Some Equipment Items is Critical To Assure Safety

- Critical maintenance items are identified by their facility and equipment owner.
- Work on these items is tracked to ensure maintenance schedules are followed.

❑ Operating Procedures, Manuals, JHAs, & Other Work Instructions For Process Equipment

- Define hazard controls, pre-use inspection procedures, and safe work practices for users.



CPR 3: Hazard Prevention & Control

Planning & Training Drive Emergency Preparedness Activities

❑ MPG 1040.3, "MSFC Emergency Plan"

- Describes our process for emergency planning & preparation, response, mitigation, & recovery.
- Tells what to do during specific emergency events:
 - Severe Weather, Ice, Snow, & Flooding.
 - Actual or Impending Fire or Explosion, & Personnel Injury or Accident.
 - Environmental Hazardous Material, Radiological, Unexploded Ordnance, & Air Pollution.
 - Civil Disturbance, Workplace Violence, Bomb Threats, & Suspicious Packages.
 - Emergencies Affecting Normal MSFC Operating Hours, & Off-Center Emergencies.
- MSFC conducts annual Severe Weather and Fire Emergency Drills.

❑ MSFC Emergency Operations Center is in Building 4202

❑ Emergency Plans for Hazardous Facilities/Operations

- Manager prepares and submits to the MSFC Emergency Preparedness Officer.
- Affected personnel review and exercise the plan periodically.
- Employees are notified of annual plan evaluations and updates.

❑ Building Emergency/Evacuation Plans

- Posted on every floor of every building.
- Identifies emergency exits, fire extinguishers, and fire pulls.

❑ Call '911' for all emergencies -- don't hang up until the dispatcher does





CPR 3: Hazard Prevention & Control

MSFC Has Onsite Emergency Response Services



*Dial
911*





CPR 3: Hazard Prevention & Control

Emergency Medical Care Program Serves All Onsite Personnel

- ❑ **MPG 1810.1, "MSFC Occupational Medicine" describes the Emergency Medical Care Program**
 - Emergency medical care is provided for *all* on-site personnel.
 - Emergency medical services are provided by HEMSI, the Redstone Fire Department, and the Protective Services Department.
 - Call '911' at any time to receive CPR, first aid, and medical care from trained emergency response personnel.
- ❑ **Work-Related Injuries and Illnesses**
 - Call '911' for emergency response personnel, if needed.
 - Notify supervisor as soon as possible after injury occurs.
 - Notify supervisor if treated for an occupational illness, such as hearing loss, skin reaction, or musculoskeletal disorder (MSD).
- ❑ **Supervisors Report Serious Occupational Injuries**
 - Flash Report is submitted to MSFC Industrial Safety Department.
 - Submit by telephone: dial 4-HELP, and choose Option 0.
 - Submit electronically: use SHE Website to 'report a mishap'.





CPR 3: Hazard Prevention & Control

Occupational Medicine & Environmental Health Services Guard Your Health

❑ Occupational Medicine and Environmental Health Services (OMEHS) Program

- MPG 1810.1, "MSFC Occupational Medicine".
- MPD 1840.1, "MSFC Environmental Health Program".
- Provides preventive medical care, emergency medical care, industrial hygiene, respiratory protection, and health physics services.

❑ Occupational Medicine Services

- Civil service and selected on-site contractor employees who work in areas with potential health hazards receive physical monitoring examinations.
- Voluntary annual health maintenance physical examinations are offered to civil servants.

❑ Environmental Health Services

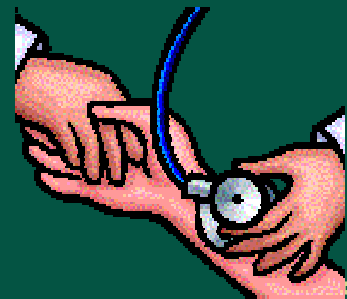
- Environmental health personnel monitor MSFC work areas for conditions or potential hazards that could affect employee health.
- Special programs include hazard communication, hearing conservation, radiation/laser safety, bloodborne pathogens, respiratory protection, and ergonomics.

❑ Ergonomic Assessment Services

- Self-assessment tools are available on the SHE Website.
- Appointments may be scheduled with Environmental Health personnel.

❑ Employee Information Resources

- Submit questions to 'Dr. Know' on the SHE Website.
- Contact the OMEHS staff directly.





CPR 4: Safety & Health Training

Employee SHE Knowledge & Skills Support Protective Programs

❑ Qualified Employees Make MSFC's SHE Program Work Effectively

- Basic skills needed to identify and control hazards.
- Specialized skills to perform their jobs in a safe manner.

❑ Employees Learn to Identify, Understand, and Prevent Hazards

- **Introductory safety training** during MSFC 'New Employee Orientation' class.
- **On-the-job safety training** from supervisors.
- **Hazard identification and safety requirements** in mandatory basic MSFC safety course.
 - 'Marshall Safety and Health 2000', '2001 Safety Seminar', 'Marshall Safety Culture'.
- **Special training and personnel certification** for higher hazard operations and equipment.
- **Individual training plans** identify training required for safe job performance.
- **Changes in facilities or processes** trigger safety training plan updates.
- **Employee requests** for special safety training are encouraged.
- **Knowledgeable SHE Trainers** are from MSFC, NASA, or outside organizations.
- **Training records** are kept as directed in MPG 3410.1.





CPR 4: Safety & Health Training

Supervisor & Manager Knowledge Guides the SHE Program

- ❑ **Supervisors Are Trained to Control Hazards**
 - 'New Supervisor Orientation' teaches SHE roles and responsibilities.
 - 'Supervisor Safety' course teaches general safety and hazard control (such as the 'DuPont Safety' course).
- ❑ **Managers Learn to Understand SHE Issues**
 - 'Manager Safety' course covers general safety, hazard control, and approaches to SHE management (such as the 'DuPont Safety' course).
 - **Building Managers & Assistant Building Managers:**
 - ➔ 'Building Manager Training Program' teaches role and responsibilities to new appointees.
 - ➔ Refresher training is provided every 3 years.
 - ➔ Quarterly meetings of Building Managers are conducted.
- ❑ **Supervisors and Managers Pass Their Knowledge On to Employees**
- ❑ **Everyone Contributes Knowledge to SHE Program Improvements**





CPR 4: Safety & Health Training

SHE Training Requirements Match Employee Job Assignments

❑ Special safety training and certification may be required for specific job functions (see MWI 3410.1)

- Employees may help determine when personnel certification is required.
- CERTRAK database records MSFC-issued safety and skills certification.
- CERTRAK notifies when recertification is due.

❑ Supervisors train new employees

- Safety rules for worksite.
- Safe operation of equipment.
- How to identify and report hazards.
- JHA and procedural controls.
- MSDS data for chemicals used.
- PPE requirements.
- Emergency procedures for Center and work area.
- How to obtain medical services.



Safety Classes

Registration Form

Class:

First Name:

Last Name:

Organization:

Phone number:

Email address:

Supervisor's Name:

[Inside Marshall | Certification System](#)



CPR 5: Environmental Compliance

SHE Program Protects World We Live & Work In

❑ Increase Use of Environmentally Friendly Chemicals

- Procure 'green' chemicals to substitute for hazardous substances currently in use.
- Comply with Executive Order 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition".

❑ Reduce Disposal of Hazardous and Toxic Substances

- Reduce, reuse, and recycle hazardous and toxic substances prior to disposal.
- Comply with the Pollution Prevention Act.

❑ Minimize Potential For Pollution of Storm Run-off Water

- Minimize entry of hazardous materials into environment, via storm water pollution.
- Comply with standards for indoor storage, engineering controls, inspections, et cetera.

❑ Limit Potential For Processes to Pollute Air and Water

- Obtain equipment and process permits under the Clean Air and Clean Water Acts.
- Comply with inspection, record-keeping, and test requirements.

❑ Properly Dispose of Waste

- Comply with permits for disposal of hazardous and controlled wastes, and wastewater.



NOTE: Contact the Environmental Engineering Department for more information.



SHE Performance Monitoring & Self-Assessment

Know & Carry Out Your SHE Program Responsibilities

- ❑ **Musculoskeletal Disorders (MSDs)**
 - **Supervisors & Employees** actively avoid MSD risk factors.
 - **Employees** report MSD symptoms promptly to supervisor.
 - **Supervisors** use NASA Mishap Reporting Form 1627 to report employee's MSD symptoms.
 - **Supervisors & Employees** assess MSD risks during all Hazard Analysis, including Job Hazard Analysis..
 - Review training module from SHE Home Page, select <Training...>, <...Topics>, <Feb...2003>.
- ❑ **Material Safety Data Sheet (MSDS) Information For Chemical Exposures**
 - **Supervisors** ensure all **Employees** are familiar with pertinent MSDS information.
 - **Supervisors** teach all **Employees** how to rapidly locate needed MSDSs in work area.
 - **Employees** learn to use & interpret MSDS information.
- ❑ **Safety Assessment of Work Areas & Operations**
 - **Supervisors & Employees** understand & use safety assessment process.
 - ➔ Access Marshall Integrated Document Library [<http://inside.msfc.nasa.gov/MIDL>].
 - ➔ Then select <Directives Master List>, select <MWI 8715.15>, & see Section 6.
 - **Supervisors & Employees** work together to develop Safety Assessment products:
 - ➔ Facility Risk Indicator (FRI) determination
 - ➔ Job Hazard Analysis (JHA), Hazard Analysis (HA)
 - ➔ Operating Procedure (OP), Dry Run
 - ➔ Inventory of Hazardous Operations (IHOPS), Personal Protective Equipment (PPE)
 - ➔ Test Readiness Review (TRR), Operational Readiness Review (ORR)
 - ➔ Safety Readiness Team, Operational Readiness Inspection (ORI)
 - **Employees** actively implement designated hazard controls.
- ❑ **At Least One Job Hazard Analysis (JHA) for EVERY Employee.**
 - **Supervisors & Employees** develop, update & agree on JHAs that cover all hazard exposures.





SHE Performance Monitoring & Self-Assessment

Basis For Past Program Improvements

- *1998 – With an effective industrial safety program in place, MSFC began proactive efforts to establish a world-class worker protection program*

1998 +

- Design Reviews
- Hazard Analyses
- Safety Inspections
- Mishap Investigation
 - Safety Bulletins
 - Safety Permits
 - ORIs, TRRs

TODAY

- New SHE Committee
- SHE Subcommittees
- SHE Website Expanded
- Contractor Safety Forum
- Job Hazard Analyses (JHAs)
- Increased Employee Involvement
- Automated Recording, Tracking & Reporting
- Safety In Performance Plans & Evaluations
 - Performance Evaluation Profile (PEP)
 - Inventory of Hazardous Operations
- Marshall Safety Culture Training
- Contractor Evaluation System
- Supervisor Safety Web Page
- Monthly Safety Meetings & Supervisor Safety Visits
- MSAT (Employee Team)
- Emergency Ops Center
- DuPont Safety Training



Continuous SHE Program Improvement

You CAN Make A Real Difference

Use Important Information Posted on SHE Website

- ❑ **SHE Home Page is at [<http://inside.msfc.nasa.gov/SHE/>]**
 - **Membership of SHE Committees & Organizations?** Select <MSFC Committees>, then <Safety, Health,...>.
- ❑ **Marshall Safety Action Team (MSAT) Information**
 - **MSAT Information?** From SHE Home Page, select <Bulletins, ...>, then <MSAT>.
 - **MSAT Members?** After selecting <MSAT>, select <About Us>, <Membership Listing>.
- ❑ **Safety Concerns Reporting System (SCRS)**
 - **Submit SCRS Online?** From SHE Home Page, select <File a report...>, then <SCRS>.
 - **Submit SCRS by Phone?** Call 544-HELP anytime, 24 x 7, and select <Safety Hotline>.
 - **Submit Paper SCRS?** Get form from bulletin board dispensers, fill-out, & mail.
- ❑ **NASA Safety Reporting System (NSRS), for System Safety issues**
 - **Submit Online?** From SHE Home Page, select <File a report...>, then select <NSRS>.
 - **Submit by Paper?** Get form from bulletin board dispensers, fill-out, & mail.
- ❑ **Mishap & Close-Call Information**
 - **Online Listings?** From SHE Home Page, select <Training...>, then <Personnel Mishaps...>.
 - **More Details?** Check Current/Historical Trends, Incident Events/Causes, Lessons Learned, etc.
- ❑ **Material Safety Data Sheets (MSDS) for MSFC chemicals**
 - **View Online?** From SHE Home Page, select <Training...>, then select <Material...MSDS>.





PEP Survey

(Performance Evaluation Profile)

PEP Survey Supports SHE Program Improvement

☐ PEP Survey is a NASA-wide Assessment Tool

- One way to measure our Safety & Health Program effectiveness.
- Used each year by NASA Centers and participating Contractors.
- Includes a moderate number of survey items.

☐ Survey Item Scores Show Our Own Opinions

- We score our agreement with survey items, using a scale of 1 to 5.
- Survey items assess implementation of specific parts of our SHE Program.
- Group scores of **4.0 and above** say we think a particular element is **working well**.
- Group scores **below 3.0** say we think a program element **should be more effective**.



☐ Survey Results Guide SHE Program Improvements

- Survey results tabulated and reported to Center and participating organizations.
- Low-scoring survey items show where to improve our SHE Program.
- Survey Report automatically suggests improvements for items scored below 3.0.
- MSFC chooses to receive suggestions for all items scored below 4.0.

☐ SHE Committee Coordinates Improvement Efforts



PEP Survey (Performance Evaluation Profile)

PEP Survey Results From 2002

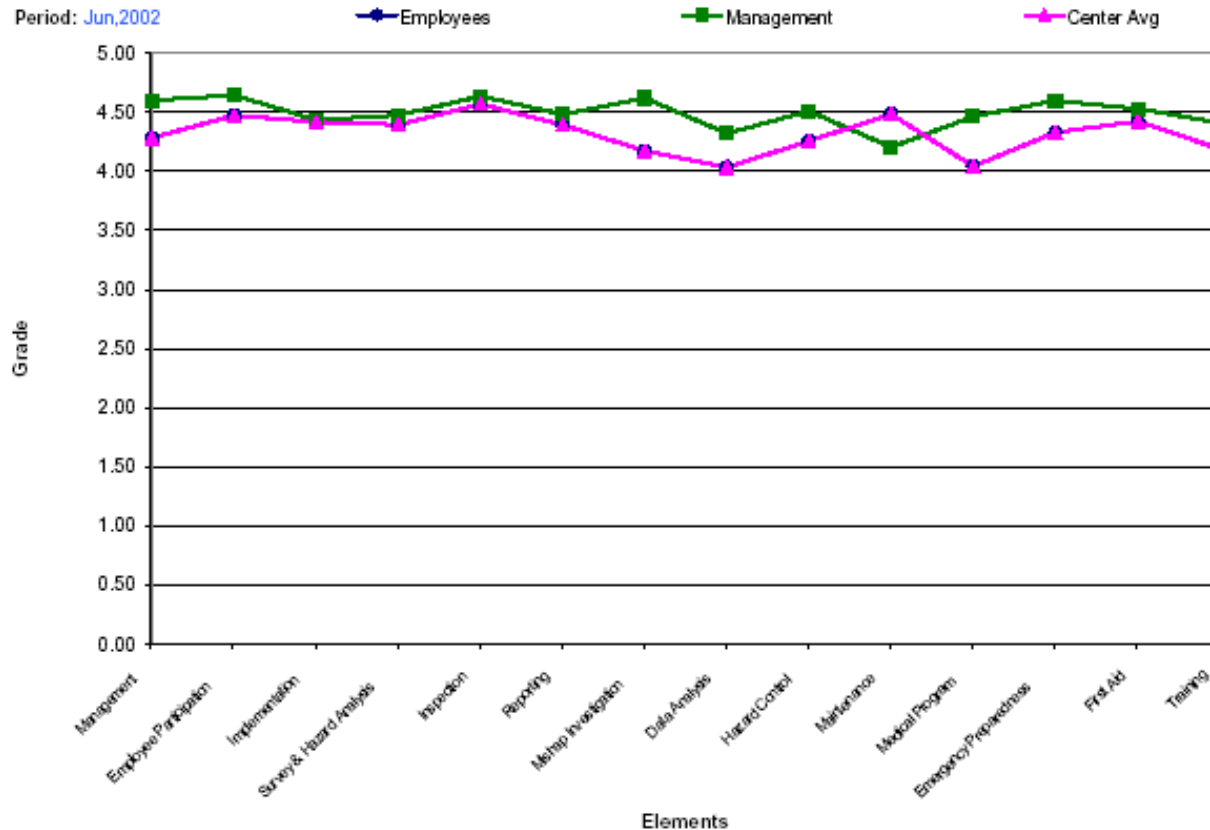
Occupational Safety Employee - Management for Marshall Space Flight Center

Nasa Organization: Rolled up to Center Level (Team)

Organization: Rolled up to Center Level

Division: Rolled up to Center Level

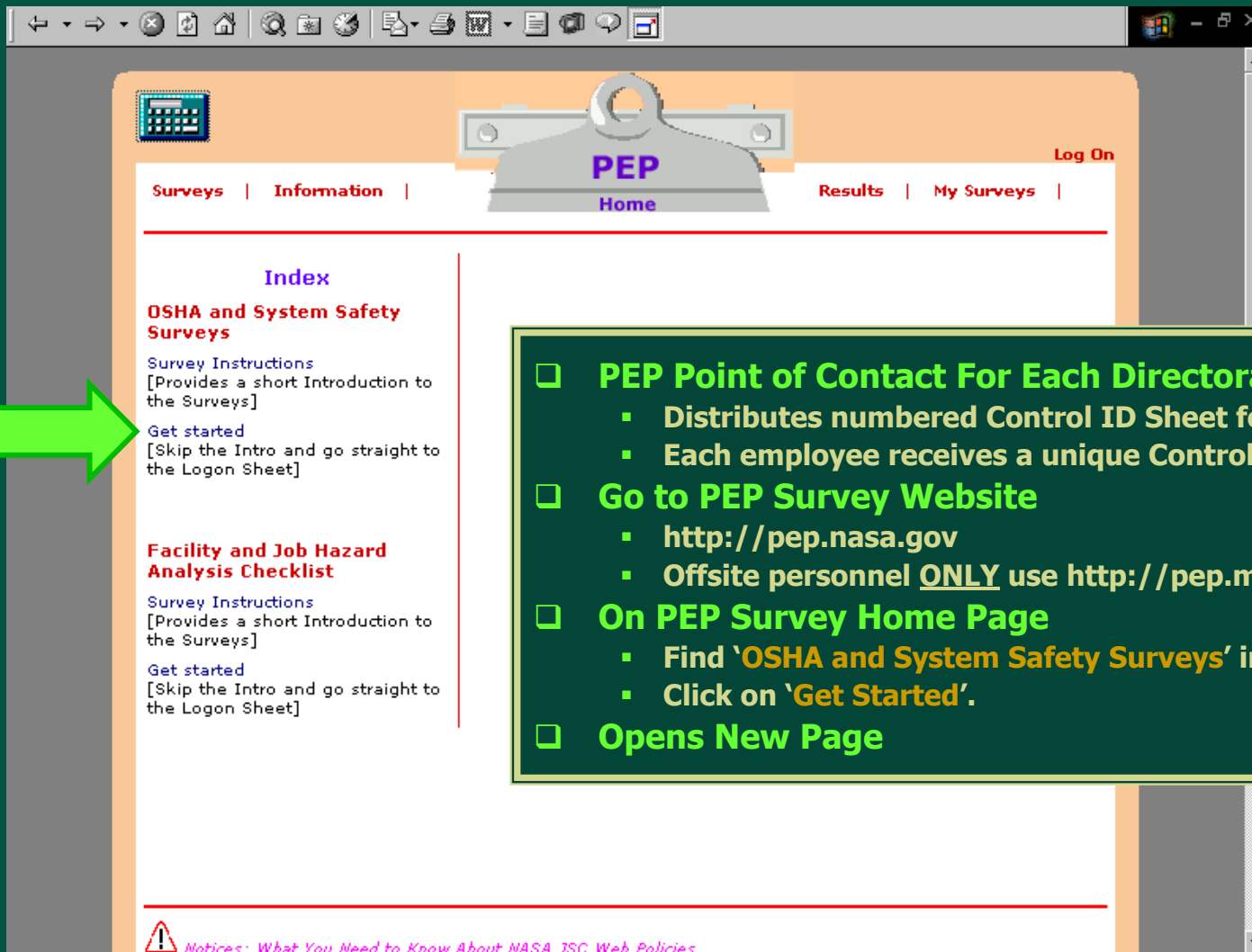
Period: Jun,2002





PEP Survey (Performance Evaluation Profile)

Take The PEP Survey Online





PEP Survey

(Performance Evaluation Profile)

Take The PEP Survey Online

PEP
Home

Log On

Surveys | Information | Results | My Surveys |

Performance Evaluation Profile (PEP) Survey Control ID Sheet

You need to take the: **Please select either the Employee or Manager Survey from below.**

Your Site is:
Your Supported Organization is:
Your Organization is:
Your Control ID Number is:
Your Division or Group is:

Please select either the Employee or Manager Survey as indicated on your personal Control ID Sheet.

Employee Survey Manager Survey

Notices: What You Need to Know About NASA JSC
Last Validated: 01-23-2001
Last Updated: 06/03/2002 13:55:57
Curator: R. Borremans
Alternates: R. Watson
Responsible NASA Official: S. T. Nakamura

Exactly Copy Control ID Sheet Data Here

- ☐ **Choose Correct Version of Survey**
 - Your PEP Point of Contact tells you which version to use.
 - Click on 'Employee Survey' or 'Manager Survey'.
- ☐ **Opens the Survey**



PEP Survey (Performance Evaluation Profile)

Take The PEP Survey Online

Visible management leadership provides the motivating force for an effective safety and health program.

1. My annual performance plan contains my requirements for helping achieve my organization's safety and health program goals.

Strongly Disagree ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Totally Agree N/A ☐ Don't Know ☐

2. Specific safety and health objectives have not been developed for my organization.

Strongly Disagree ☐ 5 ☐ 4 ☐ 3 ☐ 2 ☐ 1 Totally Agree N/A ☐ Don't Know ☐

3. Safety committees comprised of representatives from management and employees have been established and are active in the organization.

Strongly Disagree ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Totally Agree N/A ☐ Don't Know ☐

4. Senior management involves the safety committee in reviews of the effectiveness of the safety and health program.

Strongly Disagree ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Totally Agree N/A ☐ Don't Know ☐

5. I am familiar with the policies, goals, and objectives stated in the agency safety program's Core Process Requirements (CPR).

Not at All ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Totally Familiar N/A ☐ Don't Know ☐

6. Staff safety meetings, including all levels of the workforce, are regularly held at this site.

Strongly Disagree ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 Totally Agree N/A ☐ Don't Know ☐

7. A strong management commitment to safety exists in my organization.

Click On Circle to Mark Answer You Chose